Policy: 8075-5- Metadata Registry
Section: Database Standards
Office/Department: Office of IT Application Support & Development

Reports To: Information Technology
Contact: 404-631-1000

PURPOSE

This standard provides for:

- The capture and maintenance of metadata for data elements of all Georgia Department of Transportation (GDOT) information data systems operating on the products and platforms specified in GDOT's enterprise Database Platform Standard.
- Minimum requirements for the specification and documentation of metadata for all GDOT information data systems.
- A metadata set compliant with the recommendations set forth by International Standards Organization (ISO)/Federal Geographic Data Committee (FGDC).
- Establishment of standardized data elements in GDOT's Data Dictionary within the Metadata Registry to be used by all GDOT personnel and vendors in information data systems development.
- Use of a GDOT Data Dictionary incorporated in the GDOT Metadata Registry for software application development and procurement.
- Facilitation of data sharing.

SCOPE

- This policy applies to all GDOT IT personnel (including employees, consultants, contractors, vendors and other third parties) actively engaged in database design, development, or modification; and to any outside entities engaged in developing IT applications for GDOT.
- Exception to this standard must be approved by the Administrator of IT Applications.
- The scope of this document does not extend to COTS products whose implementation within GDOT does not require significant modification to the base product.

RESPONSIBILITY

- The Administrator of the Office of IT Applications is responsible for compliance with the standard, updates to the standard, and enforcing the standard.
- GDOT IT Team Leaders are responsible for compliance with the standard and for reporting concerns to the IT Application Administrator.

SUPPORTING DOCUMENTS

Doc ID	Title	Description	Reference No.
ISO/IEC 11179-1	Specification and standardization of data elements	Part 1: Framework for the specification and standardization of data elements.	1999 Information Technology
ISO/IEC 11179-1	Specification and standardization of data elements	Part 2P: Classification for data elements.	2000 Information Technology
ISO/IEC 11179-1	Metadata registries (MDR)	Part 3: Registry meta-model and basic attributes.	2003 Information Technology
ISO/IEC 11179-1	Specification and standardization of data elements	Part 4: Rules and guidelines for the formulation of data definitions.	1995 Information Technology
ISO/IEC 11179-1	Specification and standardization of data elements	Part 5: Naming and identification principles for data elements.	1995 Information Technology
ISO/IEC 11179-1	Specification and standardization of data elements	Registration of data elements.	1997 Information Technology
FGDC-STD-001-1998	FGDC Content Standard for Geospatial Metadata	FGDC Metadata Standard	

DEFINITIONS

- Metadata: Meta-data is data about data. It documents the rules by which systems interoperate and provides descriptive information about the data. Geospatial metadata includes additional data elements which are unique to describing geographic data.
- Information Data Systems: Application software for GDOT use generated, by way of example, but not limited to, through business transformation, custom application development, commercial off-the-shelf (COTS) implementations, data warehousing initiatives and business intelligence projects. Information data systems shall be those systems that run on the database platforms specified in GDOT's Database Platform Standard and Geospatial Data Policy and Standards.

STANDARDS

- Metadata must be submitted before:
    - A new or major version release of an application or database
    - Completion of an application or an upgrade to an application or database schema
- GDOT IT can provide a template that can be used as a starting point for preparing metadata.
- Metadata shall define the sensitivity of the data in accordance with GDOT's Data and Asset Categorization policy (POL-IT-025), which is based on FIPS 199.
- Metadata shall define all limitations on data access, publication, and distribution.
- Documentation of the methods of collection, acquisition, and accuracy specification of the data shall also be provided.
- All IT developers are responsible for making sure that data types, rules, and definitions governing the same data elements or look up values are applied consistently across the enterprise.
- Metadata will be updated at the time of publication and reviewed by GDOT staff at least annually.
- All data products distributed by the Department shall include the following disclaimer within metadata:

"All data and products are provided "as is" and represents the information available within the Georgia Department of Transportation at the date of issue. Every effort is made to provide accurate and reliable information, but it is still possible that errors exist. No warranties or guaranties are expressed or implied with respect to the use of data or products received from the Georgia Department of Transportation, including (without limitation) any implied warranties of merchantability or fitness for a particular purpose. In no event will the Georgia Department of Transportation be liable to you or to any third party for any direct, indirect, incidental, consequential, special or exemplary damages or lost profit resulting from any use or misuse of this data. Use of this data or product by the recipient(s) is solely at the risk of the recipient(s).

The Georgia Department of Transportation shall be cited for providing the data or products used in the creation of reports, studies, proposals and any similar documents.

The data and products, including maps, provided by the Georgia Department of Transportation remain the sole property of the State of Georgia and may not be altered or transformed without written consent from the Georgia Department of Transportation. Under no circumstances may the data or products provided by the Georgia Department of Transportation be sold to anyone or any entity. The Georgia Department of Transportation retains all legal rights to pursue violators of these Conditions of Use with the jurisdiction set within the State of Georgia."

TABULAR METADATA DEFINITION

Meta-Attribute	Definition	Agency Requirement
Data Identifier	A language independent identifier of the data element that, together with its version, uniquely identifies it in the agency data repository. (Example: Last Name)	Developers shall specify the data identifier, version, preferred name, and context in data requirement specifications of a system.
Version (selective data versioning)	An identification of the latest or previous update in a series of evolving data specifications. (Example: 2.0)	Developers shall specify the data identifier, version, preferred name, and context in data requirement specifications of a system.
Context	A designation or description of the application environment or discipline in which a data standard is applied or originates from. Name of data source. A context may be a business domain, a govt. agency, an information subject area, an information system, a database, file, data model, standard document, or any other environment. (Example: TMDD)	Developers shall ensure that the specified context is applicable to their development environment when using the data standard (industry recognized). Developers shall specify the data identifier, version, preferred name, and context in data requirement specifications of a system.
Context Definition	A natural language textual statement that expresses the essential nature of the context, and permits its differentiation from all other contexts.	In data requirements specifications, the specified context shall be defined. If an industry standard is used, the definition shall be used as is without modifications of any kind.
Preferred Name	A meaningful designation assigned to the data element.	Developers shall specify the data identifier, version, preferred name, and context in data requirement specifications of a system.
Definition	A natural language textual statement that expresses the essential nature of the data element, or specified in the standard (if used industry recognized standard), and permits its differentiation from all other contexts. (Example: Standard Last Name field)	Data definitions must be added. When data definitions from a standard are included in applications, the definition shall be used as is without modifications of any kind.
Data Type	A set of distinct values, characterized by properties of those values and by operations on those values, for example the category used for the collection of letters, digits, and/or symbols to depict values of a Data Element determined by the operations that may be performed on the Data Element. (Examples: Integer, Text, Boolean, etc.)	In data requirement specifications developers shall represent the associated concept with the data type. If a standard is used, use the data type specified in the data standard.
Data Type Definition	A statement that expresses the essential nature of a data type associated with a data element's value domain, and	In data requirements specification developers shall include the definition of the data type that

Meta-Attribute	Definition	Agency Requirement
	permits its differentiation from all other data types. (Example: Calculated Field = Integer field[1] x Integer field[2])	is being used. If using data types maintained in the industry standard, the developers shall conform to the form of the data type specified in the data type's corresponding definition.
Character Set	A collection of graphic symbols used in writing or printing, in which each character in the collection is assigned a numeric index in a particular coding table. (Example: US (7-bit) ASCII, EBCDIC, Unicode, etc.)	In data requirements specifications developers shall document the character set.
Permissible Values	The set of representations of allowable instances of an enumerated value domain of a data element, represented according to the interchange format, data type, and maximum length constraints. The set of representations of permissible instances is associated with one set of value meanings. The set can be specified by name (e.g., Postal U.S. State Codes) reference to a source, enumeration of the instances' representations (e.g., AL, AK, etc.), or rules for generating the instances.	In data requirements specifications developers shall use the permissible value and value meaning pairs exactly as is, without changes of any kind, whether they are explicitly identified by reference to the source. When transmitting the data, an application may use a subset of the permissible values, but when receiving the data, an application must be able to correctly accept any and all of the permissible values.
Value Meaning	A statement that expresses the essential nature of a set of permissible values without a specific representation, and permits its differentiation from all other sets. The set can be specified by name (e.g., the States of the United States), or enumeration of the meanings of each permissible value (e.g., the state of Alabama, the state of Alaska, etc.,)	In data requirements specifications developers shall use the permissible value and value meaning pairs exactly as is, without changes of any kind.
Non-Enumerated Value Domain Description	A description of a value domain that contains a wide range of data values that cannot be listed, i.e., is not an enumerated value domain. The ranges can usually be described by a set of rules. Example (for "text" value domain): "A String of alphanumeric characters (formatted or unformatted)."	In data requirements specifications developers shall document the form of the value domain description for non-enumerated value domains.
Maximum Length	The maximum number of storage units (of the corresponding data type) needed to represent a data element. The storage units are considered to be ASCII characters unless otherwise specified.	In data requirements specifications developers shall constrain the length of the data element to be no greater than the maximum length specified.
Minimum Length	The minimum number of storage units (of the corresponding data type) needed to represent a data element. The storage units are considered to be ASCII characters unless otherwise specified.	In data requirements specifications developers shall constrain the length of the data element to be no less than the minimum length specified.
Interchange Format	A single or multiple word designation assigned to a form of interchange for a data element, that permits its differentiation from all other interchange formats, e.g., YYYY-MM-DD for calendar date, where YYYY represents year, MM represents an ordinal numbered month in a year, and DD represents an ordinal numbered day of a month.	In data requirements specifications developers shall document the form of data element interchanges between systems.
Unit of Measure	A single or multiple word designation assigned to a measurement framework for data elements with representational forms of quantity, e.g., watt, mile, miles-per-hour, ton etc.	In data requirements specifications developers shall document units of measure for a particular data element. Note: this meta attribute applies only to quantity oriented data elements.
Unit of Measure Definition	A statement that expresses the essential nature of a measurement system associated with a data element, and permits its differentiation from all other units of measure. (Example: Mile = 5,280 feet, a linear distance measure)	In data requirements specifications developers shall define the form of measurement used in its unit of measure. Note: this meta-attribute applies only to quantity-oriented data elements.
Unit of Measure Precision	The degree of specificity for a unit of measure, expressed as the number of decimal places to be used in the data element's values. Note: Precision may be reported in non-decimal units, i.e., in eights, etc.	In data requirements specifications developers shall document the precision, and if a standard is used, the developers shall constrain the precision of the data element to the degree specified for the given context.
Low Value	The lowest value in the range of permissible values for a data element with representational form of quantity. (Example: $0.00 or 0)	In data requirements specifications developers shall document this; and if standard is used they shall constrain data element permissible values to be no lower than the low value specified.

Meta-Attribute	Definition	Agency Requirement
High Value	The highest value in the range of permissible values for a data element with representational form of quantity. (Example: $10,000,000.00)	In data requirements specifications developers shall document this; and if standard is used they shall constrain data element permissible values to be no higher than the high value specified.
Steward Business Unit	The business unit that has responsibility for the quality of meta-attribute contents for a data element. (Example: OFM)	The name of the business unit
System Name	The source system for the data (Example: Contract Management, TPRO, PeopleSoft, etc.)	Developers shall identify the source system name.
Data Steward Name	Name of the Data Steward for this data element. (Example: John Brown)	Developer shall identify the name of the Data Steward for this data element.
Data Steward Phone	Phone for the Data Steward for this data element. (Example: 404-XXX-XXXX)	Developer shall identify the phone number for the Data Steward for this data element.
Data Steward Email	Email for the Data Steward for this data element. (Example: John.Crown@dot.ga.gov)	Developer shall identify the email address for the Data Steward for this data element.

GEOSPATIAL METADATA DEFINITION

The geospatial metadata definition is:

- Federal Geographic Data Committee compliant metadata following the Content Standard for Digital Geospatial Metadata (CSDGM) as per FGDC-STD-001-1998.
- All metadata shall be delivered or exported into the Esri FGDC CSDGM XML file format.

The US Federal Government is planning implementation of ISO19115 North American Protocol (NAP) and ISO19139. Upon federal government and GIS vendor implementation, GDOT shall evaluate if there are compelling reasons to migrate geospatial metadata to these standards.

References:

FGDC-STD-001-1998 per the Federal Geographic Data Committee

History:

GIS and Data Dictionary requirements incorporated, removed references to non-existent Metadata Registry and IT Data Dictionary: 11/05/12
Copied to GDOT Publications v.02.00.00 on 2/29/2012
Created and made effective September 01, 2009
Created at 10/1/2009 2:41:01 PM by Karen Mack